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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,402	01/02/2004	Hideaki Shoji	247214US6X	2868
22850 7590 02/27/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER PHAM, TUAN	
			ART UNIT 2618	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/27/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/27/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/749,402

Applicant(s)

SHOJI, HIDEAKI

Examiner

TUAN A. PHAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 01/10/2007 has been considered by Examiner and made of record in the application file.

Response to Arguments

2. Applicant's arguments, see Applicant's remark, filed on 12/07/2006, with respect to the rejection(s) of claim(s) 1-11 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Birnbaum et al. (U.S. Pub. No.: 2003/0103014).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4-5, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (Patent No.: US 5,949,377, hereinafter, "Matsumoto" in view of Birnbaum et al. (U.S. Pub. No.: 2003/0103014, hereinafter, "Birnbaum").

5. **Regarding claim 1**, Matsumoto teaches a radio device comprising a notch antenna, wherein said notch antenna comprises (see figure 44):

a circuit substrate comprising a ground portion (see figure 54, ground), and a notch portion opened at one end thereof (see figure 44, notch antenna 90, open portion 92); and

a radio circuit portion provided on said circuit substrate for supplying a high-frequency current to said notch portion (see figure 44, high frequency signal source 25, col.12, ln.18-61).

It should be noticed that Matsumoto fails to teach a conductive bent-back portion formed on said one end side of said circuit substrate and configured to be connected with said ground portion and to extend said notch portion. However, Birnbaum teaches a conductive bent-back portion (see figure 3C, conductive material 300 bent back, [0017]) formed on said one end side of said circuit substrate (see figure 3C, conductive 300 is formed on one side of PCB 310) and configured to be connected with said ground portion and to extend said notch portion (see figure 3C, [0016-0017]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Birnbaum into view of Matsumoto in order to combine EMC and antenna together for saving the space in the communication device as suggested by Birnbaum at [0007]).

Regarding claim 2, Birnbaum further teaches said bent-back portion is formed by integrally bending a portion of said circuit substrate (see figure 3C, PCB 310, conductive bent back 300).

Regarding claim 4, Birnbaum further teaches said bent-back portion is formed by bending a metallic plate (see figure 3C, [0016-0017]).

Regarding claim 5, Birnbaum further teaches said bent-back portion is fixed to said circuit substrate by a screw for fixing both a casing for containing said radio device therein and said circuit substrate (see figure 3C, conductive 300 is soldered on the PCB 310, it is obvious that conductive 300 can be screw on the PCB as just a manufacture's choice).

Regarding claim 9, Birnbaum further teaches said bent-back portion is bent back to the side on which said radio circuit portion is provided, of said circuit substrate (see figure 3C, conductor bent back 300, PCB 310).

Regarding claim 10, Matsumoto teaches a cellular phone comprises (see figure 44):

a casing (housing 15);

a circuit substrate comprising a ground portion (see figure 54, ground), and a notch portion opened at one end thereof (see figure 44, notch antenna 90, open portion 92); and

a radio circuit portion provided on said circuit substrate for supplying a high-frequency current to said notch portion (see figure 44, high frequency signal source 25, col.12, ln.18-61).

It should be noticed that Matsumoto fails to teach a conductive bent-back portion formed on said one end side of said circuit substrate and configured to be connected with said ground portion and to extend said notch portion. However, Birnbaum teaches

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a conductive bent-back portion (see figure 3C, conductive material 300 bent back, [0017]) formed on said one end side of said circuit substrate (see figure 3C, conductive 300 is formed on one side of PCB 310) and configured to be connected with said ground portion and to extend said notch portion (see figure 3C, [0016-0017]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Birnbaum into view of Matsumoto in order to combine EMC and antenna together for saving the space in the communication device as suggested by Birnbaum at [0007]).

Regarding claim 11, Birnbaum further teaches said bent-back portion is formed so as to be bent back to the side opposite to the side of a hand when said cellular phone is held on the hand (it is obvious the antenna should face away from user hand for better reception, figure 3C).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (Patent No.: US 5,949,377, hereinafter, "Matsumoto" in view of Birnbaum et al. (U.S. Pub. No.: 2003/0103014, hereinafter, "Birnbaum") as applied to claim 1 above, and further in view of Iura et al. (U.S. Patent No.: 5,281,765, hereinafter, "Iura").

Regarding claim 3, Matsumoto and Birnbaum, in combination, fails to teach said circuit substrate has a multilayer structure in which one layer is a flexible printed cable, and said bent-back portion is formed by bending said flexible printed cable. However, Iura teaches such features (see figure 6a-6e, col.3, ln.18-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Iura into view of Matsumoto and Birnbaum in order to easy to bent or sharp the angle as suggested by Iura at col.3, ln.18-27.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (Patent No.: US 5,949,377, hereinafter, "Matsumoto" in view of Birnbaum et al. (U.S. Pub. No.: 2003/0103014, hereinafter, "Birnbaum") as applied to claim 1 above, and further in view of Umehara et al. (U.S. Pub. No.: 2003/0052827, hereinafter, "Umehara").

Regarding claim 6, Matsumoto and Birnbaum, in combination, fails to teach said bent-back portion is comprised of: a perpendicular portion rising substantially perpendicularly to said circuit substrate; and a parallel portion substantially parallel to said circuit substrate, said parallel portion formed so as to extend from the leading end of said perpendicular portion in a direction substantially orthogonal to the notch direction of said notch portion and to cross said notch portion. However, Umehara teaches a perpendicular portion rising substantially perpendicularly to said circuit substrate (see figure 1, PCB 7, element 6 is perpendicular with the PCB); and a parallel portion substantially parallel to said circuit substrate (see figure 1, element 1 parallel with the PCB 7), said parallel portion formed so as to extend from the leading end of said perpendicular portion in a direction substantially orthogonal to the notch direction of said notch portion and to cross said notch portion (see figure 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Umehara into view of Matsumoto and Birnbaum in order to make a better reception as suggested by Umehara at [0010].

8. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (Patent No.: US 5,949,377, hereinafter, "Matsumoto" in view of Birnbaum et al. (U.S. Pub. No.: 2003/0103014, hereinafter, "Birnbaum")) as applied to claim 1 above, and further in view of Yao et al. (U.S. Patent No.: 6,052,093, hereinafter, "Yao").

Regarding claim 7, Matsumoto and Birnbaum, in combination, fails to teach said circuit substrate comprises two notch portions, and said bent-back portion is provided to correspond to each of said notch portions. However, Yao teaches such features (see figure 7, two slot antennas, Birnbaum teaches one slot antenna associate with one bend back, Yao teaches two slot antenna. It is obvious that said bent-back portion is provided to correspond to each of said notch portion is a choice of the manufacture).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yao into view of Matsumoto and Birnbaum in order to make a small and flat antenna for better reception and low cost as suggested by Yao at col.2, ln.45-50.

Regarding claim 8, Birnbaum further teaches both of said notch portions are provided on said one end side of said circuit substrate (see figure 3C).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Pham whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2618
February 16, 2007
Examiner

Tuan Pham

Supervisory Patent Examiner
Technology Center 2600

Matthew Anderson